CORROSION RESISTANT COATING FOR SEMICONDUCTOR PROCESSING CHAMBER

ABSTRACT OF THE DISCLOSURE

Resistance to corrosion in a plasma environment is imparted to components of a semiconductor processing tool by forming a rare earth-containing coating over component surfaces. The plasma-resistant coating may be formed by sputtering rare earth-containing material onto a parent material surface. Subsequent reaction between these deposited materials and the plasma environment creates a plasma-resistant coating. The coating may adhere to the parent material through an intervening adhesion layer, such as a graded subsurface rare earth layer resulting from acceleration of rare earth ions toward the parent material at changed energies prior to formation of the coating.